

GEORGE ENGELMANN BOTANICAL NOTEBOOKS

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May
1875.

THE GARDENER'S MONTHLY.

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taken up his residence here. I don't wish to infringe on your valuable columns, but as Mr. C. has taken the trouble to mislead you, I write merely to correct. I wish to give you a correct list of houses, as we were ten years ago, and as we are to-day. Ten years ago Mr. Galvin had one house, Mr. Fadden two, R. Wilson three; that completed the list of florists. Now Galvin & Geraghty nine houses, Smith & Butler six, Fadden six, Hardwick five, Findlay two, McCleash one, Maher two, Reynolds two, Thurston three single houses some two hundred feet long each, Mr. P. Caswell six large houses, Waring four houses, Lawton three, and many more. We are not going back, Mr. Editor, in Newport; on the contrary, I think we are now progressing very fast and in a short time we shall be able to compare favorably with old Scarborough, and in time we will make a good record in specimen plants.

THE CONIFERÆ OF THE ROCKY MOUNTAINS.

BY DR. GEO. ENGELMANN.

Lecture before the Washington University.

After traversing those immense treeless plains west of us, a chain of mountains rises suddenly like the rocky bound of a great ocean. On the slopes, in the valleys of those mountains, trees and forests, which we had missed so long, again welcome us. But no deciduous trees, adorned with a fresh fullness of foliage in one season, and entirely destitute of leaves in another, diversify the somber grandeur of those ever green mountain woods, which seem to know no summer nor winter. The natural history of these forests will be the theme of this evening's lecture.

Just as in our low lands we observe a great diversity of generic and specific forms among our deciduous trees, among our maples, our hickories, and above all among our oaks, so these mountains abound in numerous forms, or species, as scientific nomenclature calls them, of evergreens, of conifers, different in their shape and size, in their foliage and color, in their fruit (cones) and seeds.

These mountains, these forests, commence at an elevation above the ocean of 5,000 or 6,000 feet—an elevation where, on the Swiss Alps, trees already cease to grow; and they extend up to the flanks of the mountains, far above the limit where, on those European mountains, eternal snow and ice cut off all kinds of vegetation.

In other words, the mean temperature of this mountain region is considerably higher than its

great altitude and the analogy of European mountains would induce us to expect it.

The explanation of this interesting and important physical fact will be found in the immense extent of that elevated country. We have here no isolated mountain chains or single peaks before us, but a large part of a whole continent lifted high up above the general level.

It is, in fact, a colossal plateau, rising gradually and almost insensibly from the Mississippi to the base of the mountains; then suddenly, with these mountains, undulating to another chain of mountains, until it abruptly terminates on the Pacific; extending from high northern latitudes down into Mexico, and comprising the greater part of that country—an extent of nearly 3,000 miles from northwest to southeast, and of about 1,500 miles in its greatest breadth from east to west, taking in the higher part of the plains, and elevated between 4,000 and 6,000 feet above the oceans.

THIS PLATEAU

(or, as we can consider it, this great geological swell of the earth's surface) carries up with it the general temperature of this surface in those latitudes, modified, of course, by the conditions of its great altitude, the rarity and transparency of the atmosphere, the powerful evaporation and radiation.

The mountain ranges themselves rise like crests or wrinkles from this plateau, and we will not go far amiss if we consider the climatological effects of their altitude as if the base from which they rise were level with the sea shore, and not itself already mountain high.

The treeless summit of Mount Washington in New Hampshire is scarcely higher than the plains at the foot of Pike's Peak at the site of the flourishing city of Colorado Springs, where the forests only begin. The forests really extend up the mountains from an altitude of 5,000 or 6,000 feet above the sea to that of 11,500, or even nearly 12,000 feet, which is 6,000 to 7,000 feet above the plain; the very elevation above the ocean at which we find the timber line on the Swiss Alps, which lie in a higher latitude; on Mount Etna, in nearly the same latitude; and even on the Peak of Teneriffe, ten degrees farther south than Pike's Peak.

It is, then, not so much the elevation above the ocean as the elevation above the high plateau which is the essential element in the climatology, and, with it, the distribution of the forests of these mountains.

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Another element of great importance is the dryness of the atmosphere in the mountains. The summer tourist may object to the assertion that the atmosphere there is dry; he may assure you that all that is said about the clear skies and the absence of rain is, to his certain personal experience, a great mistake, or, as they often term it, "a fraud." And it is very true that in the months of July and August showers of rain, often accompanied with vivid thunderstorms, are of almost daily occurrence, and greatly interfere with pleasure parties. That is really so; but the quantity of rain in those showers is generally small, and the rarified air soon absorbs a great part of the moisture. The climate is a dry one. If nothing else, the scarcity of ferns and the almost absolute absence of club mosses would prove it, which in varied abundance adorn the Eastern mountains.

Vegetation thrives in this climate best where mountains are high enough and cold enough to condense whatever moisture the winds may have brought from the Pacific Ocean, after having deposited its greater part on the slopes of the western mountains, where, in consequence, fogs are so prevailing and vegetation so luxuriant.

Now, the

HIGHEST ELEVATION OF THE ROCKY MOUNTAINS

happens to be precisely in Colorado, where the great watershed itself and many of its spurs have an altitude above the sea of 10,000 to 12,000 feet, the peaks rising to 13,000 and 14,000, or even about 14,500 feet.

It is a noteworthy fact that so many summits reach to this same altitude, and none are higher. The same is the case in the mountains of the Pacific States. They are real democratic mountains; a great many tower high up, but not one of them attains such a domineering elevation as we find in other mountain systems.

The Rocky Mountains do not really reach into the region of eternal snow, though the Alpine summits of many of them rise 2,000 to 3,000 feet above the timbered region. But snow is found on many of the higher ones all the year round, in localities where the nature of the surface has permitted drifts to accumulate, and has protected such drifts from the too powerful action of the summer's sun.

North as well as south of Colorado the Rocky Mountains do, with few exceptions, not reach to the altitude attained there, and in this circumstance lies the explanation of the fact that their

forests are poorer and are even replaced by the desolate sage bushes, as they are called, or, properly, wormwoods. The forests of the central chain of the Rocky Mountains consist exclusively of conifers. The deciduous trees, we find, are few and scattered. Along some mountain stream we meet here and there with a peculiar species of poplar or cottonwood, which, from its narrow leaves, you would at any time take for a willow rather than a poplar—the bitter or willow-leaved balsam poplar. The quaking aspen is another species of poplar, common as a small bush on springy mountain slopes and valleys; sometimes in wet flats it grows to be a tall tree, the bark furnishing a favorite food for the beavers, which just in such localities used to build their dams and construct their habitations—used to, for here, also they now almost belong to the things of the past.

On the banks of these streams bushes of alders and willows and two peculiar kinds of birches grow, together with some other small shrubs, and these complete the list of ligneous plants with deciduous leaves; but only the two kinds of poplars mentioned above grow up to real trees. They form no element in the constitution of the forest. No oaks, no walnuts or hickories, no elms or sycamores, the glory of our woods, are seen here.

THE FOREST IS EVERGREEN THROUGHOUT, a feature which, in these parts of the Mississippi Valley, we are entirely unfamiliar with. We have, to be sure, stunted cedars here and there in our woods; in our hilly regions to the southwest are districts of yellow pine, but they are too limited in extent and too much mixed with deciduous trees to produce an effect approaching that of those evergreen mountain forests.

Far north as well as far south of us pines become more abundant. The white pine forests of the north and northeast, and long leaved, the yellow and other pines of the south and southeast cover, perhaps, as extended districts as the Rocky Mountain pines, and are far more important in an economical point of view. But even they are not exclusive occupants of their region, and deciduous trees often mingle with them.

But pines are not only now, in our day, or, I should more correctly say, in our present geological epoch, characteristic of certain regions of the globe. Geological investigation has proven that there was a time in the history of our earth when pines were the first, the only exogenous trees in existence. In as early a period as the



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Carboniferous

Jurassic, and is believed even the Triassic, pines have made their appearance, far in advance of any deciduous or other trees, with the exception of the huge tree ferns, the calamites, Lepidodendra and other uncouth vegetation of the carboniferous and other early periods ; and their cones, very similar to our present pine cones, are found in those strata.

Thus the pines are really the pioneers of modern forests in early geological times. I have called them the first exogenous trees; trees the wood of which exhibits those concentric layers or rings with which we are familiar in our common woods, and which indicate the annual addition of the exogenous growth, on the surface of the wood, under the bark. Palm trees and other endogenous woods increase without regular annual layers by irregularly interwoven fibres.

The conifers or pines, terms which I use here indiscriminately for all the members of the pine family, exhibit to this day their primeval origin in the primitive and simple organization of their reproductive organs, more simple than that of the humblest grass, which thus stamps them as among the earliest of flowering plants, certainly the first of exogenous growth.

(To be continued.)

EDITORIAL NOTES.

MILLER & HAYES Catalogue. With the spring edition these gentlemen have issued a beautiful colored plate of the new rose "Miller Hayes," named in their honor by Verdier of Paris, and of which a description has already appeared in our pages.

WEBSTER'S LANDSCAPE AND ORNAMENTAL GARDENER, is a small pamphlet, published by William Webster, of Rochester, New York, who has already achieved considerable eminence in his profession, and is known in connection with some of the famous gardens of our country. We suppose the pamphlet is for gratuitous distribution. It is full of excellent hints to those desirous of improving their grounds ; with ground plans of some of the places already made beautiful by Mr. Webster's agency.

AMERICAN ENTERPRISE.—It is often said that if we want new things, we have to go to Europe to find them. Taking up to-day some catalogues of a leading Prussian firm, we find *Hesperochiron Californium*, and other new and good things offered for the first time, which have already been made familiar to American flower

lovers by the catalogues of Messrs. J. M. Thorburn & Co. We are glad to note these evidences of home enterprise. If the people would encourage them more they would doubtless be more frequent.

NANZ NEUNER & CO., Louisville, Kentucky, illustrated catalogue of seeds, plants and bulbs, has a handsome lithograph of a very pretty garden scene for a frontispiece.

NEW JERSEY STATE AGRICULTURAL SOCIETY.—Report to the Legislature for 1874, contains among other excellent matters two articles on cranberry culture, and roads ; the last especially should be universally read. That good roads pay at any reasonable cost is a general truth. It is not yet clear how to bring about this desirable end in our country.

NURSERYMAN'S DIRECTORY.—By an advertisement in last number, it will be seen that D. Wilmot Scott is engaged on this useful work.

MR. CHARLES DOWNING—The *Gardener's Chronicle* has an excellent portrait, with an appreciative but very well deserved sketch of his life and services.

OBSERVATIONS ON THE PHENOMENA OF PLANT LIFE.—A Paper presented to the Massachusetts Board of Agriculture, by W. S. Clark, President of the State Agricultural College, Amherst, Massachusetts. President Clark has become well known by reason of the numerous experiments in plant life, which he has instituted in the college, and to which we have occasionally referred. It is safe to say that no more useful work has ever been undertaken in this country, and every lover of vegetable physiology will feel under great obligations to Mr. Clark, for the good work which he has done.

Having recently given a synopsis of many of the experiments, we need not go over them again now. If we were disposed to be critical we might say that we hardly think some of the deductions which President Clark makes, are warranted by his facts ; but this does not detract from the value of these facts, on which of course every reader is at liberty to place his own interpretation. The paper is profusely and intelligently illustrated.

PRIVET—"Private." When the proof sheets of our last number came before us, a few alterations in the arrangement were necessary, which left a blank, that we asked the printer to fill in with some paragraph from the matter "crowded out." He selected the answer to a correspondent on "Privet," but supposing we did not



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know how to spell it properly, made it *Private*. The printer was not aware that we hold ourselves open to a challenge from the champion of any "Spelling Bee" in this country, or he would not have dared to alter the orthography of that word.

ROSE CATALOGUE OF E. Y. TEAS.—We note that in this fine list, there is one named E. Y. Teas, by the celebrated French Rose Grower, Eugene Verdier. Here also is the Rose with "such a name," as one of our exchanges expressed it. *Deuil de Paul Fontaine* was not of course written *Devil* by Mr. Teas. It was our contemporary's own blunder, and he was reflecting on its own mistake.

FOURTH ANNUAL REPORT OF THE OHIO AGRICULTURAL COLLEGE.—This gives a good account of the doings of the college for the past year. Among other items, we notice that credit is given to our excellent correspondent, Mr. W. T. Harding, for what he has done in his department. And this moves us to say that our agricultural and educational colleges might do excellent service to horticulture by making the office of chief gardener rank with that of the regular Professors,—so that they could report themselves on their own doings, and receive pay and position accordingly. Of course there are numerous "gardeners" who would be as much out of their element in a position of this kind as a bull in a china shop,—but then there are also "Professors" of all sorts of things, with whom the genuine article would be ashamed to associate. Intelligent gardeners of this class, fit for such positions, are not numerous,—but there are quite enough for a start,—and if the way were open for these, with due rewards, there would soon be a good field to select from.

HISTORY OF THE CABBAGE.—Perhaps the earliest mention of the cabbage by ancient English writers is by Sir Arthur Ashley Johnson. A contemporary of Ashley speaks of the "great ordinarie cabbage, knowne everywhere, and commonly eaten all over the kingdome." This in 1636.

POLITICAL GEOLOGY.—We see by the Western papers that Dr. I. A. Lapham, whom the whole world honors for his distinguished knowledge and services in geology, botany, and kindred sciences, has been removed from his position as State geologist in order to make way for another gentleman, who—so the papers say—can be of more use to the "party in power." It so happens that we do not know what "party" in poli-

tics Dr. Lapham affiliates with, nor do we know what party holds the "power," so we are free to offer our opinion that it will be a bad day both for politics and science when such considerations as this reported in Dr. Lapham's case, becomes general. We hope for the credit of science, that there is some mistake in the report. Dr. Lapham is certainly removed,—and if for political reasons, as stated, it will be to the disgrace of Wisconsin as a State, and probably the first case on record in this country, where any man's religion or politics entered into a question of science. We should as soon think of bringing it into the *Gardener's Monthly*, as of expecting to see it made an element in the appointment of a State Geologist.

MR. WILLIAM MEEHAN.—When the enthusiasm over California fruit broke out, a large number of the best gardeners of Philadelphia started for the golden land, and among them a younger brother of the editor of this magazine, who was at that time gardener for E. H. Hopkins, of Bristol.

As the history of these early horticultural pioneers has always been a matter of interest to those who knew them, we may be pardoned for giving place to the following from the *Marysville (California) Appeal*:

"Intelligence has been received of the death of William Meehan, a former resident of this city, who died at his home in Germantown, Pa., on the 7th of November last, aged 41 years. The deceased was a gardener in the employ of Charles Covillaud, the pioneer, for many years. Subsequently he became associated with Julian Trambly, purchased a tract of the old Covillaud garden, located on the Simpson lane, and there carried on the business of gardening for several years. Some years ago Mr. Meehan's health became impaired, and after combating his disease for a long time he disposed of his interest here and sought a change of climate in the hope of beneficial results. But consumption had gained too strong a hold, and the result is now announced. The deceased was a native of England. His death, though not unexpected, will be regretted by all who knew him intimately."

ROPP'S READY RECKONER, published by C. Ropp, Jr., Bloomington, Illinois. This is an extremely valuable idea, and just suited to the wants of gardeners, farmers, nurserymen, and everybody in fact that may have to make calculations, and want the readiest and quickest way of going about them. The tables are so arranged



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ing the Doctor to be a Horticulturist and Botanist of considerable prominence, and realizing themselves the eminent fitness of the term, readily adopted the suggestion, and catalogued the new comer accordingly. As speciosa, as applied in Botany, signifies *fine, beautiful, making a good appearance*, we knew of no better or more fitting word to distinguish our improved variety of Catalpa from C. Bignonoides. The habit of growth of the two trees are as different as can well be imagined, at all ages from one year to twenty; Speciosa being very upright, regular in form, and much more vigorous, while the foliage, flowers, and seed pods are each twice as large as in Bignonoides. I have recently compared hundreds of trees in various localities, on different soils, and of different ages, and find the distinction uniformly so well marked that any observer can distinguish them. I will distribute seeds of C.

Speciosa to any one willing to pay the postage on a few." [Mr. Teas seems to have a peculiar weakness in imagining himself "charged" with something, which no one but himself ever thought of. We should not suppose it a "crime," much less "a" great crime for Mr. Teas or anybody else to name a Catalpa or any other thing. As we suppose our paragraph was clear enough to every one except Mr. Teas, we need make no further explanation. We prefer "The Teas Catalpa" as a name for a marked variety like this. We are opposed to latin names for garden forms. We prefer the simple "Rose E. Y. Teas," to the *Rosa Theana*, or any thing like it. But if we must have a Catalpa "speciosa," please let it be *Catalpa bignonoides, var. speciosa*, and the only ones to object will be the general tree planter at the awfully long and as we think unnecessary name.—ED. G. M.]

Literature, Travels & Personal Notes.

COMMUNICATIONS.

THE CONIFERÆ OF THE ROCKY MOUNTAINS.

BY DR. GEO. ENGELMANN.

Lecture before the Washington University.

(Continued from page 153)

Leaving these more strictly scientific investigations, and turning to the utilitarian aspect of this family of plants, we find its members to be of the utmost interest, of the utmost importance to the human race—

FROM THE CEDARS OF LEBANON,

which built Solomon's Temple, to the spruces of Northern Europe, which furnished the masts and spars for all the navies of the period; to our own white pines, which, together with some other pines of the South and East, and the pines and red woods of the West, supply the indispensable material for building, on land as well as at sea.

I have mentioned the red woods, one the Sequoias—more important to man than the other—the mammoth tree, and scarcely less colossal. They, too, are conifers, and so are the junipers, the cypresses, and even our taxodium—the bald cypress of the South—not all conifers, you

see, are evergreens. The larches, you know, and some others, also, lose their foliage in winter.

The pines then, with their woods, principally, and also their other products, which I have not mentioned, e. g., turpentine and pitch, are the most important trees to man—at least in the northern hemisphere; and wherever soil or climate do not produce them, commerce carries them.

I have alluded before to the distribution of conifers, and that they are often more or less mixed with deciduous trees, but on the higher mountains, and in high northern latitudes, do they exclusively constitute the forest. We touch here at that peculiar feature of the distribution of plants over our globe so odd at first sight, and so easily explained, when we look closer at it. I mean the similarity of a high northern and a high mountain vegetation. This similarity goes so far that the circum-polar vegetation is, to a great extent, the same in America, Asia and Europe; it sends its colonies southward on the high mountains or isolated peaks, which rise much like islands in an ocean, and retain their identity or similarity of vegetation, after the great geological changes of past epochs have



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long since severed their immediate connection with the centers of distribution.

Thus we find on the Rocky Mountains, and especially on their Alpine summits, many plants which are familiar inhabitants of the European Alps, or the Scotch mountains, or the Siberian Altai, or even of our eastern Mount Washington and similar peaks.

But in the pine family we meet in the Rocky Mountains, never the same, but often similar species—representative species as they have been termed. Not a single pine in that region is identical with Eastern pines, or with those of the Old World. On the other hand, the similarity of the coniferous vegetation of these mountains and that of

THE CALIFORNIA SIERRAS

is very great. Almost all the coniferæ of Colorado extend to or reappear in California; but this latter country produces quite a number of species unknown in Colorado. It is richer in varied forms, as we may expect from the varied conditions of soil and climate.

And yet even the limited extent of the Colorado mountains nourishes a large number of species. We find there ten different pines and three junipers. Ten of these thirteen conifers may be seen in a certain district of Colorado—the heart of the mountains it may be called—within a couple of miles.

But do not think that these pines are indiscriminately mixed, like the trees in a park or an arboretum. Oh, no; all occupy their distinct and peculiar stations, though some are more generally distributed, while others are confined to certain latitudes and altitudes.

Enough of abstract generalizations, which may become tedious.

Follow me rather into the mountains, where some of you may have rusticated, and may have seen for yourself, if you have an eye for such observations.

Not far from Denver, between two table-mountains, at Golden, opens the picturesque Clear Creek Valley, which cuts through the mountains from west to east, and carries the waters from the highest range—they call it the Snowy Range—roaring or tumbling down to the Platte River, and thus finally to the Missouri, and then past our city, as a minute tribute to the Mississippi River.

In that wild gorge between overhanging cliffs, sometimes rising to the height of 500 feet, we would not expect forests; scarcely trees find a foothold,

yet here and there where the slopes are not too steep, or the rocks leave a little margin on the edges of the creek, are seen two of the most wide-spread conifers of these mountains, and, in fact, of the whole elevated region from the forty-ninth parallel down into Mexico.

The first and foremost of these is the heavy pine *Pinus ponderosa*; the other is the Douglas spruce, called by the mountaineers, usually—for there is great latitude and individual liberty in the use of such names in a new country—called, as I say, yellow pine and hemlock, in remembrance of the trees with which the colonists had been familiar in their far off Eastern home.

I have got to speak of names, words, and am thus trenching upon ground which my predecessor in this hall, in last week's lecture, has so charmingly illustrated. But I fear that I cannot entirely agree with him. The names familiar to us as those of the homes of our youth, certainly revive the pleasantest associations, and if we give them to our new abode, if we found a New York or a Nouvelle Orleans, no fault can be found. But if the first settlers, with more imagination than knowledge, thought they recognized in our junipers a cedar, or in that other conifer a hemlock, and adopted these names for entirely different objects, they adopted errors and propagated them, and by the lapse of time the abuse has become a use, sanctioned by general consent.

AMERICAN JUNIPERS WILL FOREVER REMAIN CEDARS,

though no real cedar may be found nearer than the Lebanon, the Taurus, or the Atlas. But we may attempt, with some hope of success, to prevent the introduction of false names in our day. We find no Eastern white pine or yellow pine or hemlock or balsam in these mountains; and people would understand one another better if they could agree upon appropriate names for objects which are of daily use and interest.

But let us return to our pines. Both species were discovered and brought to the knowledge of horticulturists and botanists by that intrepid Scotch traveler, David Douglas, who, not quite fifty years ago, explored the vegetable treasures of those then far off wilds which he several times fearlessly and successfully penetrated as far as the coasts of Oregon and California, to find a horrid termination of his adventurous life in the pitfalls of the Sandwich Islands.

Fine trees, raised from the seeds which he sent home, now adorn the parks of old England,



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at Elvaston, Dropmore, Chadsworth and the botanic gardens of Kew and Edinborough, and Douglas' spruce perpetuates his name with the botanist as well as with the literary public. But in the mountains and woods personal names do not seem to succeed ; they may seem to indicate a personal claim which, I believe, is never sanctioned by general use, and so we may as well drop it and adopt or propose that of mountain hemlock.

The mountain hemlock is really closely related to that charming Eastern hemlock spruce, now familiar in our gardens, but it is a coarser, less graceful tree, which bears those pretty, bracted or, as it were, fringed cones, so eminently characteristic of the plant. Its wood is coarse, and not much esteemed, but nevertheless used a great deal, where better cannot be had. This tree is scattered over the mountains far and wide, and reaches pretty high elevations, but does not form entire forests, as some of the other species do.

The heavy pine is one of the largest and finest trees of Colorado, and, as I have already stated throughout the West, often three feet through and eighty feet high in the mountains, it grows to much larger dimensions in more fertile and milder parts of the country, alway distinguished by the thick, red brown bark, the long and stout leaves, and the good sized very prickly cones. On the foothills, especially on the divide, as it is called, between the Platte and Arkansas Rivers, it constitutes forests, and is said to be the principal tree in the now famous Black Hills. It rises up the mountains as high as 9,000 feet, where it mingles with the true mountain pines. The heavy and solid resinous wood of this pine is much used in those regions where it is abundant and accessible, and for railroad ties invaluable.

BUT WE ARE STILL IN THE CANYON, as they call these gorges, with the significant Spanish term. There, on the water's edge, scarcely in any locality but where the torrent may bathe its rootlets, a third conifer, the valley spruce, or, as botanists call it, Menzies' spruce, sends up its tapering trunk. Old trees, with a gray bark that reminds one more of an oak than a pine, look desolate enough, more like a skeleton of a tree, with their thinly covered horizontal branches, showing only in the very top the long, pale, glistening cones.

The young trees one would scarcely believe of the same kind, so different looks their charming pale bluish foliage, agreeably contrasting with

the sombre colors of rocks and of trees about them. In many yards about Denver these bluish spruce bushes may be seen in cultivation. Menzies, after whom this spruce has been named, was also a Scotch explorer, who discovered it about eighty years ago, on the shores of the Pacific, where it extends even up to Alaska.

But, extensive as is its geographical range, it is no forest tree, and at least in Colorado it is only scattered along the streams.

The wild Clear Creek canyon is passed. It now expands into a valley, of narrow dimensions yet, but mostly with less abrupt mountain slopes. The same trees continue yet, here and there gathered into groves or small woods. The warm springs of Idaho have the same vegetation, and we continue in the valley up to 8,000 or 8,500 feet above the sea before we meet with any other species of our coniferous friends. On the upper branches of Clear Creek, in the neighborhood of the town of Empire, with its abandoned gold tunnels, and of Georgetown, with its rich and prosperous silver mines penetrating deep into the dark and forbidding rocky faces of its ever-opposed Republican and Democratic mountains —there, where the mountain sides tower higher, where their summits attain Alpine elevations, other conifers replace those seen below. But this dreary yet romantic, bustling yet desolate, valley of Georgetown is not the place for us to study and to admire the forests ; they have disappeared, whatever there was of them, into the hungry maws of those roasting and smelting works.

Follow me rather to that sad and quiet village with the proud name, which expresses the excited hopes of a few years ago, perhaps to be realized a few years hence. South of us, as we stand in the sloping streets of Empire City, expands

A LOVELY VALLEY OF NATURAL MEADOWS, and some attempts at agriculture, closed in by Lincoln Mountain (not the higher and better known Mount Lincoln on the headwaters of the Arkansas) on our right, and Douglas Mountain on our left, names which, like those of the Georgetown Mountains, ever will designate the period when these wildernesses were first colonized, and the land marks named, by a people who brought with them the political interests and the political strifes of their Eastern homes.

This valley is shut by a low rocky barrier, the abrupt and dangerous Georgetown Pass, which leads towards the valley of that name. Behind



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this pass higher mountains rise, and further off the Alpine summit of the Sugar-loaf terminates the distant view. In front of us, in the wide opening of this lateral valley, a ridge of low grassy hillocks seems to separate it from the main Clear Creek valley. These are the moraines, the products and the witnesses of the old glaciers which, in earlier geological periods, filled these valleys with their ice masses. Such moraines are found at the mouths of all these lateral valleys of higher mountains, and they would have shut off the valleys and made them lakes or swamps, if the mountain torrents had not broken through them at one place or another, cutting a deep gap for the issue of their waters.

The moraines are generally covered with grass and low herbs, and between these we are surprised to meet with an abundance of globose or ball shaped cacti, from the size of a hickory nut to that of a large apple—plants which we would much rather have looked for in the more temperate Mexican countries than in these high mountains, probably the highest and most northern of any such cacti. It has another interest for us, as it is the same pretty species which was first discovered in Utah by Captain (now General) Simpson's exploring expedition, in 1858 and 1859, and which has been named and described by me, years ago, as *Echinocactus Simpsoni*.

Let us now follow the main valley westward, open at first, were some fields well irrigated produce a good crop of potatoes and turnips, and some oats, which never mature—such is the climate in these mountains. Near a saw mill, where the well named Mad Creek rushes down, leaping and tumbling from the snow fields on the flanks of Parry's Peak, several pines, we have not yet seen, make their appearance. The place of the valley spruce, which is no more seen here, is now occupied by the much handsomer mountain spruce, a kind of balsam fir, closely related to the Eastern fir, but larger in all its dimensions, often accompanies it; the straight pine, and here and there the squirrel pine, complete the list of conifers seen in the Upper Clear Creek Valley. Only one mountain pine, for which I would propose the name of the hickory pine, the toughest and hardest of all, don't seem to care to leave its high rocky slopes for the more sheltered and more fertile valley.

The others also have their homes higher up on the mountains, but they send down with the streams their outposts into the valley below.

(To be concluded in next number.)

INSECTS IN KANSAS.

BY H. E. VANDEMAN.

You perhaps remember that I said when Jack Frost had locked the last devouring jaw, I would write you somewhat of our experience with insects the past year. It is now almost time for the jaws of some of them to be opened again. I shall say nothing in detail of the chinch bug, which has been far more destructive to Kansas crops than the locust, for it does not attack horticultural crops but the cereals only.

I expect to make a sort of random sketch, for I am not an entomologist strictly so called but only an insect fighter. The first of these enemies to visit us was the rose-chafer. For four years this insect has been so numerous as to be very destructive. For three years it gained in numbers very rapidly, even so much so as to almost devour the entire crop of grapes and blackberries in the bloom if not persistently fought. In some cases no means were found to be effectual because of the numbers to be caught. But last year there was a slight decrease, and we hope they may pass to another region. I should say that this insect up to this time has confined its depredations to the half dozen counties in the South East corner of the State, but is moving northward and westward. But those who were plucky enough to diligently use a basin with a little water in it caught enough of the bugs to save their grapes and blackberries, but the roses they almost destroyed under the most diligent hands. In large vineyards they were not proportionately numerous. It is strange to say, only he who had a few grapes or blackberries was the one to suffer.

Next came the *Plum curculio*. We had an abundant crop of the native Chicasa plum, but woe to all the others and to nectarines and apricots also. Well now I must take that back for in one case I did see several trees loaded with the best of plums and another in which a few nectarines were left. But so long as we continue to improve the Chicasas we may look to be able to yet outgeneral the little turk. The great, the dreadful, the much-talked of grasshopper or locust was the third on the programme.

Now I want to say just here, that there has been much said that is calculated to mislead, and that is really false about the ravages of that insect in these parts last year. In the Northern and Western portions of the State it did much more damage than in the Southeastern. The great reason of this is that it did not reach here until

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our impression that we were almost alone in horticultural literature in maintaining that the juices of plants, commonly hardy, cannot wholly freeze, and yet the plant or the parts frozen retain its life.

But we see that the *Gardener's Chronicle*, edited by one of the foremost of vegetable physiologists, Dr. M. T. Masters, is evidently of the same opinion. In an editorial article on the subject of injury by frost to wholly hardy plants, in that paper of May 15th, it explains that plants usually hardy, "may have its sap crude," though we do not quite understand what is meant by this; but at all events when this is the case, the sap has not the power to exclude the frost, and the result it is "frost bitten" and dies. This is the same doctrine we teach.

NEW PLANTS OF UTAH—Dr. C. C. Parry spent last season in Southern Utah, exploring the botanical features of that country, and finding some twenty species, which were before unknown, and which have been named accordingly. An amusing criticism appears in a western agricultural paper. The editor thinks *Yucca brevifolia* must be wrong. He "cannot find it in Loudon,—and it is probably *Yucca superba*." *Yucca baccata*, he says, "is not described by the old standard authors, and is probably *Yucca angustifolia*." He thinks Dr. Parry utterly mistaken in his classification of the *Larrea Mexicana*, which in his opinion, "should be placed among the *Laurus* tribe." *Malvastrum coccineum*, he thinks, "must certainly belong to the *Malva* tribe." He does not feel sure about the *Lycium*, but quotes what "Clusius says" about them, and so he "might go on, and cover a quire of foolscap." In physiological botany, we often find matters questioned because 'Senebier' or T. A. Knight or some other one hundreds of years ago knew nothing of them,—but it is something new to have similar criticisms in this department.

CONIFERS FROM COLORADO.—Some good cones and foliage of an interesting Conifer (*Abies concolor*) have recently been received at the Kew Museum. Its history has been given by Mr. Andrew Murray at p. 105 of the present volume of the *Gardener's Chronicle*, and Mr. Murray's opinion as to its close resemblance to *P. grandis* we readily endorse. The cones referred to above were sent by Dr. Englemann, some from the gorges in the foot-hills of the mountains in Southern Colorado, and the others from Southern Utah. Of these Dr. Englemann thinks there are two forms, differing in shape

of cone— one described as pointed, and the other retuse, and also differing in their bracts and scales. One of these cones had fallen to pieces on its journey, therefore we are not able to speak on that point; but so far as the bracts and scales are concerned we must confess ourselves as being unable to distinguish between them. With regard to the "question of which is Douglas' *Abies grandis* and which *amabilis*?" quoting from Dr. Engelmann's letter to Dr. Hooker, he says, "I should like to know whether any of the different forms have yet borne fruit in England;" and he states that a tree with very dense, dark green foliage, white on the lower side, which he saw in the Edinburg Garden under the name of *amabilis*, and another at Dropmore, where it was called *grandis*, are undoubtedly the true *amabilis*. It is singular, Dr. Engelmann says, that none of the forms of *grandis* should have fruited in England, while in Colorado it fruits at the age of twenty-five years.

The following list of Colorado Conifers, with the altitude of each species, from the pen of such an authority as Dr. Englemann may be valuable to some readers of the *Gardener's Chronicle*:

Abies grandis.—Altitude from 8500 feet to the tree limit.

A. concolor.—Between the waters of the Platte and Arkansas; between 6000 and 7000 feet.

Tsuga Douglasii.—6000 to 10,000 feet.

Picea Menziesii.—In valleys near mountain streams; 6000 to 8500 feet; never forming forests.

P. Engelmanni.—In valleys, and especially on mountain slopes, scattered, or in extensive tracts; 8500 feet, to timber line 11,500 feet.

Pinus contorta.—Extensive forests on mountain slopes; 9000 to 10,500 or 11,000 feet; in valleys running down, scattered as low as *P. Engelmanni*.

P. Ponderosa.—Lower down at the base of the mountains than any other Pine; at an elevation of about 5000 to 9000 feet.

P. aristata.—9000 and, more especially, 10,000 feet to timber line, and in scraggy bushes even above it, up to 11,500 or 11,800 feet.

P. edulis.—Only in Southern Colorado, from Pike's Peak southward to between 6000 and 7000 feet.

P. flexilis.—9000 to 10,500 feet, probably not up to 11,000 feet, in valleys coming down to 8500 feet.

Juniperus communis.—Up to 9000 or 10,000 feet elevation.

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J. virginiana.—Up to 9000 or 9500 feet; over the territory in the southern part (Colorado Springs to the Arkansas) in very unusual forms, short trunks, broad flat heads, &c.

J. occidentalis.—Only from Pike's Peak southward with *Pinus edulis*, especially on the Upper Arkansas River.—*Gardener's Chronicle*.

Mar. 27, 1875 N. S. T. L. 402

QUERIES.

JUANULLOA PARASITICA, is the plant referred to in the following from D. G., Poughkeepsie, N. Y.: "Will you please and see if you can

give us the right name of the enclosed flower; it is one of the old greenhouse plants; most of them are getting all forgotten now a days, and even good gardeners do not know them, not even our neighbor, Mr. F. W. Poppey. I took it for a *Brugmansia*; it flowers mostly in the fall; perhaps you have the name, and will give it in the *Monthly*, and oblige."

NAME OF WILLOW.—Young gardener, Great Barrington, Mass. It is but a chance that one can name a willow from a small sprig with any certainty. Yours appears to be *Salix purpurea*.

Literature, Travels & Personal Notes.

COMMUNICATIONS.

THE CONIFERÆ OF THE ROCKY MOUNTAINS.

BY DR. GEO. ENGELMANN.

Lecture before the Washington University.

(Continued from page 184.)

subspina
The stateliest, most striking of all, is the mountain balsam or mountain fir: *Abies grandis*, the great fir, our old friend Douglas named it, when he met with it on the waters of the Columbia River. There it has a right to the name; there trees of five or eight feet in diameter and 200 feet high are said to be not rare. The severer climate of Colorado never permits them to reach such dimensions. The largest I have seen were scarcely three feet in diameter, and 100 or 120 feet high. But a stately tree it is, nevertheless; look at the smooth, white, column like trunk; the regular pyramid of the head, tapering to the very top with spreading branches; and spreading foliage, lighter green than the sombre spruces, with a paler tinge on the lower surface, and in the top, on the uppermost branches, those deep purple cones of cylinder form, rising perpendicularly up like huge tapers of a Christmas tree. Its wood is coarse and light, and of no more value than that of most firs is. We do not find forests of it, but meet with it in suitable damp localities, almost up to the timber line, and cannot help always a welcome to its form, as graceful as it is majestic.

The valley is narrower, the creek wilder, the mountains higher; now perpendicular cliffs jut out from the mountain side, with here and there a lonely pine, like a sentinel, on an inaccessible pinnacle; yonder the more even, I can not say the more gentle slope, bears the thickest of those grand pine forests, which for miles and miles clothe with eternal verdure the flanks of those giant mountains as high up as physical causes will permit them, to 11,500 feet altitude—above that elevation no trees can live.

But we are in the valley yet, and can not leave it without noticing the numerous flowers which spring up in the gloom of the forest. Above all the abundance of low rose bushes is striking, such as we have not met with in the lower valleys, covered with fragrant flowers in one season, and not less beautiful in autumn when their large, bright pendulous pods glisten in the sun, brighter than the finest corals; nor must we forget the red raspberries, the most delicious and most plentiful fruit of the mountains, and the blue and red huckleberries, which for acres and acres cover the soil under the pines. Several kinds of gooseberries and two of strawberries are also found here, but not in sufficient quantity. Other fruits, cultivated fruit, are unknown in this climate, unless they are brought from California, which they often are. Another humble, but quite interesting, berry of these higher mountain woods is what they call the mountain grape. What botanist, what pomologist could guess



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that thus they name and thus they use here the black, astringent berries of the low, evergreen, mountain barberry, sometimes called mahonia? Fermented with the addition of sugar, the juice really makes a palatable and wholesome wine.

Two trees only constitute the bulk of the forest here. The straight pine covers the upper part of the valley and the mountain sides from 8,500 to about 10,500 feet altitude, and then gives way gradually to the mountain spruce, which is the prevailing tree at the last 1,000 feet below the tree limit.

The tree I would designate as the straight pine was named by its discoverer *contorta*—the crooked one—perhaps on account of the frequently twisted cones. Douglas, so often mentioned, found it near the mouth of the Columbia River, whence it extends up and down the coast, and as well to the mountains of the Pacific States as to the Rocky Mountains, with the heavy pine—one of the widest-distributed Western pines, but a more northern tree than that, not found in New Mexico or Arizona.

Look at the straight, slender trunk, covered with thin, scaly, light gray bark, and say whether straight pine is not the more appropriate name? The dark green, short and stiff leaves, in pairs, characterize the tree not less than the small prickly cones which cover the branches, old and young, in long strings. These cones do not drop at maturity; they often do not even open their scales to cast the seeds, as if to store them up for future use. Thus, the branches are loaded with the cones of sometimes eight or ten years. No European pine has such a tenacity; and of our Eastern pines only one exhibits something like this character, and has from this property received the name *serotina*, the tardy one. Quite a number of Californian and Mexican species have the same peculiarity, the purpose of which is yet unexplained. The trunks of the trees are only one or two feet thick, but the wood is of excellent quality.

The mountain spruce, *A. Engelmanni*, now mingles with this pine at its upper limits, and soon takes its place completely, and forms the highest forest belt. You recollect that we have met with it in the valley, not far above Empire, but its true home is in the high mountains. Here, just below the Alpine slopes, it is the prevailing forest tree, and extends south to the mountains of Arizona, and north and west through Montana to Oregon; but its peculiarities escaped botanists until the first scientific

explorer of Colorado, Dr. Parry, of Davenport, brought it to light, twelve or thirteen years ago. The cinnamon colored thin bark, detached in flakes, covers the straight trunk, on which the narrow top rises like a spire, densely covered with dark green, or sometimes paler or even bluish foliage. Then pretty pendulous cones of purplish or bronze color are crowded on the extremity of the uppermost branchlets. It is a valuable tree, with soft, white, close grained wood, whence the mountaineers often call it a white pine. A gentle bridle pass leads us up through these woods until we reach open ground; a charming little park, covered with flowers, irrigated by springs which send off their waters to both oceans; we are on the crest of the mountains, in one of the best passes, the easiest and pleasantest in these mountains, Berthoud's Pass as it is named after one of its first explorers. Back into the high mountains of the head of Clear Creek, forest clad below, bare and enclosing extensive snow banks higher up—the view opens, and forward into the wide expanse of Middle Park with its grassy valleys and rocky pinnacles—right before us, in the distance the rugged forms of Long's Peak.

In the pass itself dense groves of the spruce trees two and a half and three feet in diameter, attract our attention. We have examined the age of smaller trees, just cut down, in the construction of a wagon road over the pass, and find that trunks of six or eight inches in diameter show 120 to 180 annual rings, so slow is their growth; those largest ones must then date back 600, perhaps 800 years.

But the pass can not hold us long; we hasten to see the last of the timber, and explore what we have repeatedly spoken of as "timber line."

On both sides of the saddle-like pass the mountains rise higher. We follow the woods up four or five hundred feet, without noticing much change in the size or closeness of the trees; the larger ones, to be sure, have disappeared, but middle-sized trees crowd around us, till suddenly we find ourselves on the edge of the timber, and the Alpine slopes open out before us grassy and flowery; or, as the case may be, stony and rocky, rising sometimes between 2000 and 3000 feet higher up. But the forests do not give up their domain without a struggle. Between their boundary and the bare summits is a belt of, as it were, debatable ground, where, scattered, the hardiest pines try to encroach, gain a foothold, persist, perhaps for years, in constant struggle



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with the elements, are injured, thinned out in colder winters, until only a few of the toughest are left, scattered, perhaps, where the ground affords a slight protection, but always woefully maltreated and crippled by the overpowering forces opposed to them.

This belt, this battle field, narrower or wider, according to the nature of the ground and the steepness of the slope, has almost picturesque but at the same time a most dismal aspect, the very image of living nature in its combat with the elements.

Suppose we approach it from the east, or on an eastern slope. The last trees, still a foot or a foot and a half in diameter, and thirty or forty feet high, are behind us, before us, a few hundred yards, or, may be, a quarter of a mile, crooked or gnarled bushes bent toward us, sometimes almost prostrate on the ground, smaller and farther apart as we rise higher. They are apparently well covered with leaves, and abundantly branching, and often of unimpaired fertility, and covered with cones.

We have passed this belt, and now turn round. What a moment ago were fresh and fruitful, though misshapen bushes, are now turned into white and ghastly skeletons. Bare trunks and branches only are in sight; stripped of leaves, and of bark even, and bent over to the east.

The terrible Western winter storms and pelting hail, against which there is no protection in these altitudes, have killed the entire western half of these bushes; only their eastern succumbent half lives a precarious life.

Is it not singular that photographic art has not among the hundreds of mountain views annually taken preserved a single one that I could discover of such remarkable scenery?

One of the pines which thus encroach upon the Alpine domain is our mountain spruce, the other is the hickory pine which we meet here for the first time. We might have seen it, however, on Douglas Mountain, near Empire, where it comes down to about 9000 feet above the ocean. It is often seen in Colorado, from that altitude to the timber line, wherever the soil is rocky and barren enough, while the spruce prefers more fertile and damp ground.

The hickory pine (*Pinus aristata*), also a discovery of Dr. Parry, has its name from its very hard and tough wood, which when communication with the east was more difficult than it now is, was used where we employ maple or hickory. It is one of the five leaved pines like the white

pine, but with very different, short, oval, dark purple cones.

On Douglas Mountain, and here and there over the higher mountains, between 8,000 and 11,000 feet altitude, still another and very singular pine occurs—the squirrel pine *P. flexilis*—still more like the white pine, but with large edible seeds, much esteemed by the former Indian owners of the soil, and as well by the squirrels, some species of which inhabit these woods, and leave their traces in the shape of torn and plundered pine cones under the trees.

The action of animals to obtain the seeds of some of these conifers is often very ingenious. The cones, as I have said, usually open at maturity, and scatter the seeds far and wide. To prevent such a waste of the good thing, some animals, most probably birds, cut the small branchlets just before the cones mature, and drop these to the ground, where they can feast on the seeds at leisure.

In two of the junipers of the Colorado Mountains we meet old acquaintances.

One is the well-known juniper bush of the North and East and of Europe, and the other, what we usually call our cedar. They are the only conifers extending from the Atlantic to the Pacific.

We have lingered so long among the pines of the Snowy Range and the Clear Creek Valley that your patience is, I fear, well nigh exhausted, and I will scarcely find time to do more than allude to the conifers which are peculiar to Southern Colorado; to that part of the State—State it is since yesterday—watered by the affluents of the Arkansas River.

An elevated country between Denver and Colorado Springs called the Divide separates not only a northern from a southern slope, but also a northern from a southern flora.

The mountain hemlock and the heavy pine are common to both districts; other northern or sub-alpine conifers are also found in congenial locations of the southern mountains; but a few species, which we have not yet seen, make their appearance about the base of the mountains.

A new balsam fir, named by me many years ago—from Santa Fe specimens—*Abies concolor*, because of its light bluish leaves, of the same color on both sides, graces the gorges in the sandstone formation at the foot of Pike's Peak, the Ute Pass near Manitou, Cheyenne Canyon, and, above all, the charming Glen Eyrie, a tree

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that will be highly prized in Europe, where it is just now being introduced.

How different is the scenery near Canyon City, where, fresh and green, the young Arkansas breaks through that great gap in the mountains. No woods are here, such as we have seen in the Clear Creek range; dark clumps of bushy trees dot the rocky slopes; southwestern forms which here find their northeastern limit.

The nut-pine is one of them, the small, round, knobby cones of which include large edible seeds, well known in the markets of New Mexican towns by the name of pinones. Dr. Wislizenus, of our city, brought the first specimens of this tree from Santa Fe, which I described under the name of *Pinus edulis*. In New Mexico, as well as Southern Colorado, the wood is considered the very best fire-wood.

The other tree or bush, as the case may be, generally growing with the nut pine, is a kind of juniper or cedar—*Juniperus occidentalis*—which I only mention as the last of the thirteen Colorado conifers, because said to be an entirely useless tree. It does not split, but splinters; and in an open fire cracks and flies, but is excellent in a stove. It is used for fences, but splits so poorly that it is not otherwise used.

I thank you, ladies and gentlemen, for the attention with which you have listened to, perhaps, too dry details; but let me hope that what I have said may add to the interest and pleasure with which one or the other of you may hereafter visit the forests of the Rocky Mountains.

EDITORIAL NOTES.

FIELD AND FOREST.—This is the title of a new monthly magazine of Natural History, issued by the Potomac Naturalist's Club, and edited Mr. Charles R. Dodge. It is much of the character of the excellent little Bulletin of the Torrey Botanical Club, only that it takes in every branch of natural history. Such well known scientific names as Dr. Coues, Dr. Abbott, Prof. Cyrus Thomas, Dr. Geo. Vasey, and Prof. Chickering appear as contributors to the present number.

REPORT OF THE STATE ENTOMOLOGIST OF THE STATE OF MISSOURI.—As our readers mostly know Missouri has a State Entomologist, employed at a small salary, to find out all that can be known of the insects that may have an influence,

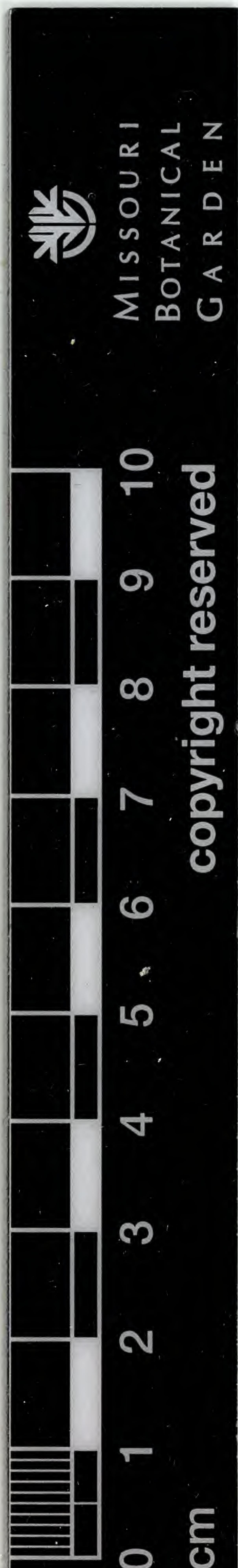
noxious or beneficial, on the agriculture or horticulture of the State. Mr. C. V. Riley has filled the office since it was established, and the result of his labors is not only a great benefit to Missouri, but the whole world feels under an obligation to that State, for what it is doing in this line for knowledge.

The present report has an exhaustive article on the Potato Beetle, containing all that is absolutely known about it both in its natural history, and the means for its destruction. Similar respects are paid to the Chinch bug, so destructive to Western wheat fields.

TRANSACTIONS OF THE KANSAS STATE HORTICULTURAL SOCIETY FOR 1874. From Geo. E. Brackett, Secretary, Lawrence.—It gives an abstract of the laws that have been made by the legislature on various arboricultural and horticultural topics, and the body of the work made up of reports from various parts, and discussions at the meetings; many of the essays are of a high order of intelligence, and would do credit to a more pretentious work. The Report is not only full of interesting matter to Kansas individually, but shows what Horticulture has done for it.

TRANSACTIONS OF THE ILLINOIS STATE HORTICULTURAL SOCIETY. From O. B. Galusha, Secretary, Normal, Illinois.—This is a large volume of 200 pages, beautifully bound, and profusely illustrated by cuts of injurious insects, of which full descriptive accounts are given. When the great value of these Reports are taken into consideration, it is surprising that all the leading horticulturists and agriculturists of the State are not members, yet only about one hundred are on the roll. In a prosperous State like Illinois this ought at least be multiplied by ten.

TRANSACTIONS OF THE MASSACHUSETTS HORTICULTURAL SOCIETY, 1875. From E. W. Breswell, Corresponding Secretary, Boston, Massachusetts.—At the present time, growing in age, this honored Society shows all the vigor and activity of healthy youth. It is not long since that the publication was commenced, but it is quite as useful as the exhibitionss. It is no honor to an exhibitor to take premiums unless the horticultural world knows of it, nor does the world care to know Mr. this or that took a premium, unless it knows what he took the premium for, and all the particulars go with it. The Massachusetts Society gives the former fully in its Annual Report, and in these transactions gives abstracts of discussions on topics brought out by the exhibitions and exhibition incidents.



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It is a pity there is no index. In a general way we note that there is a charming essay on the Azalea by Col. Wilder; on Strawberries by B. G. Smith; Shade Trees by John G. Barker; Pelargoniums, by Wm. Gray, Jr., with a list of the best kinds, and no one can speak from better experience; Ferns by John Robinson; on Seedling Fruits by J. B. Moore, in which the origin of the "Sweet and Sour Apple" was discussed; Parlor plants by Mr. Rand; Orchids by James Cartwright; Gardening by C. M. Hovey, and an address by Mr. Parkman. If there be any of our Massachusetts readers who are not members of the Massachusetts Horticultural Society, and so do not get these Transactions, they miss some excellent and profitable reading.

HORTICULTURAL WRITERS.—A correspondent calls our attention to an editorial in *American Rural Home*, an agricultural paper of Rochester with a good reputation, but which does not come to our exchange table, which says that the writers in the *New York Tribune* do not know as much as they ought to do, "probably because they do not live at Rochester." Our correspondent should not feel badly about this, however. If Rochester people know as much as they ought to, and have no more to learn, it is not a safe place to live in. But we doubt whether any considerable part of intelligent Rochester Horticulturists share this sentiment. The writer merely had a "jolly" moment, when he penned the lines.

THE POSTAL LAWS.—The Boston papers say boldly that the postal outrage was the work of Senator Hamlin, acting under the whip of the Adams Express Company. It appears it was not intended to include transient newspapers, perhaps books and some other things, which do not interfere much with the express, and it is said that the "law will be repealed next winter." But unless our Horticultural and Agricultural friends look pretty sharp they will find the law will not be altered as it affects them. The Adams Express Company having been powerful enough to ride over them, will doubtless be in a position to keep the advantage they have gained.

THE NUTMEG.—This spice, so much used in every family, is indigenous to the Moluccas, reaching its greatest perfection in Amboyna. This island belongs to the Dutch, who do not permit the cultivation of the Nutmeg in the other islands under their control. The Nutmeg tree is 25 to 30 feet high when fully grown, with foliage of a rich dark green, and very plentiful. It reaches maturity, or full productiveness, at

the fifteenth year for planting. From the blossom to the ripening of the fruit takes about seven months; but as the tree is a perennial bearer, there are always blossoms, green fruit and ripe on the tree. The yield is most plentiful in the last four months of the year. The average yield per annum of a healthy tree is 5 lbs. of Nutmeg and $1\frac{1}{4}$ lbs. of Mace. A plantation of one thousand trees, requires the labor of seven coolies, fifty oxen, and two ploughs, for cultivation and harvesting. The fruit is gathered by means of a hook, attached to a long pole. It is shaped like a Pear, about the size of a Peach, and has a delicate "bloom." The nut has three coverings; the outside one is a thick fleshy husk, having a strong flavor of Nutmeg. This husk preserved in syrup when young, is a favorite sweetmeat in the East Indies. Under this husk is the bright red mace, which is carefully flattened by hand, and dried on mats in the sun. It loses its rich scarlet, and becomes a dull orange color, and requires to be kept perfectly dry to preserve its flavor. After the Mace is removed from the fruit, the nuts, in their brown shells are placed on hurdles over a slow fire, which is kept constantly burning under them for two months. The nuts then rattle in the shells, which are cracked with a wooden mallet, the sound nuts selected and packed in wooden cases, and sprinkled over with dry sifted lime, and are then ready for market. The best Nutmegs are dense, emit oil when pricked with a pin, and can always be known by their heavy weight. Poor ones are light and easily detected.

—*The Garden.*

CUTTING RED WOOD TIMBER.—A correspondent of the *Country Gentleman* says: Striking off from the beaten paths of tourists, the writer lately determined to find material for a letter to the *Country Gentleman* in a visit to the red-wood forests, and the saw mills, on Russian River. The nearest mill was twenty miles distant. But such was the purity of the atmosphere, the timber can be distinctly seen looming up in its gigantic height twenty miles away, on the mountains. After a sharp drive across the plain we descended to the river through Pocket canyon where forests of fir and laurel line the hill sides. At this season the river is a stream of fifty feet in width, about knee deep. The other bank is the margin of the red-woods. A mile beyond we came to Murphy's mill, located in a valley in the heart of the timber. Though it has been running continuously all summer, with a force of

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS



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